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AN ANNOTATED CHECK-LIST
OF THE PTERIDOPHYTA OF SOUTHERN AFRICA.

By A. H. G. ALSTON
(*British Museum (Nat. Hist.), London*)

AND

E. A. C. L. E. SCHELPE
(*Department of Botany, Oxford University*).

Since the publication of T. R. Sim's *Ferns of South Africa* in 1915, further taxonomic studies have led to nomenclatural changes. Also, recent collecting has led to a number of new records of ferns for Southern Africa. The aim of this paper is to provide a list of the pteridophytes known to occur in Southern Africa embodying these changes and additions. The geographical area considered in this paper includes the Union of South Africa, South West Africa, Basutoland, Bechuanaland, Swaziland, Southern Rhodesia and Portuguese East Africa (Mozambique) south of the Zambesi River.

A number of tropical African ferns have been collected in the northern Transvaal, Southern Rhodesia and Portuguese East Africa. Many of these new records have resulted from the collections made by the late Dr. B. S. Fisher and by Dr. H. G. Schweickerdt. Other new records have originated in collections made in more southerly areas. In the notes appended to this check-list, some short descriptions and references to localities, specimens and the herbaria in which they are housed are given in the case of such new records. Wherever nomenclatural changes have been effected, the reasons for these changes have been given in the appended notes. The numbers in brackets after specific epithets in the list refer to the numbers given to individual notes. Incorrect or invalid names given by Sim (1915) are also given in brackets after specific epithets. A specific epithet enclosed in square brackets indicates that

the species is considered to be an introduced alien. Herbaria containing cited specimens are given in abbreviated form in brackets after such citations. The abbreviations are those proposed by Lanjouw in *Chronica Botanica*, 5, 2/3 (1932).

The arrangement of the Filicales is according to Christensen (1938) in the *Manual of Pteridology*. Reference is made to the more recent arrangement proposed by Copeland (1947) in his *Genera Filicum* which has not yet received universal acceptance in its entirety.

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PSILOTALES

PSILOTACEAE

Psilotum Sw.

nudum (L.) Griseb. (1) (*P. triquetrum* Sw.)

LYCOPODIALES

LYCOPODIACEAE

Lycopodium L. (2)

saururus Lam.

gnidioides L. fil.

dacrydioides Bak.

verticillatum L. fil.

ophioglossoides Lam. (3)

clavatum L. (4)

cernuum L. (4)

complanatum L. (5)

carolinianum L.

sarcocaulon A. Br. & Welw. ex Kuhn (6)

(*L. carolinianum* L. of Sim in part)

SELAGINELLACEAE

Seiaginella Beauv.

pygmaea (Kaulf.) Alston (7)

(*S. pumila* Spr.)

cafferorum (Milde) Hieron. (7)

(*S. rupestris* Spr. of Sim in part)

Dregei (Presl) Hieron. (7)

(*S. rupestris* Spr. of Sim in part)

Mittenii Bak. (7)

(*S. depressa* A. Br. of Sim; *S. Mackenii* Bak.; *S. Cooperi* Bak.; *S. tectissima* Bak.; *S. integerrima* Spr. of Sim)

Kraussiana (Kunze) A. Br.
abyssinica Spring
imbricata (Forsk.) Spring ex Deene.

ISOETACEAE

Isoetes L.

capensis Duthie (8)
natalensis Bak.
stellenbossiensis Duthie (8)
Stephansenii Duthie (8)
Wormaldii Sim

EQUISETALES

EQUISETACEAE

Equisetum L.

ramosissimum Desf.

OPHIOGLOSSALES

OPHIOGLOSSACEAE

Ophioglossum L.

Bergianum Schlecht. (9)
sarcophyllum Desv. (10) (*O. capense* Sw.)
nudicaule L. fil.
reticulatum L.

MARATTIALES

MARATTIACEAE

Marattia Sw.

fraxinea Sm. (11)

FILICALES

OSMUNDACEAE

Osmunda L.

regalis L.

Todea Willd.

barbara (L.) Moore

SCHIZAEACEAE

Schizaea Sm.**pectinata** (L.) Sw.**tenella** Kaulf.**Lygodium** Sw.**Kerstenii** Kuhn (12)**scandens** (L.) Sw.**Anemia** Sw.**Dregeana** Kunze**Simii** Tardieu Blot (13) (*A. anthriscifolia* Schrad. of Sim)**Mohria** Sw.**caffrorum** (L.) Desv.**lepigera** Bak.

MARSILEACEAE

Marsilea L.**ephippiocarpa** Alston (14)**macrocarpa** (D.C.) Presl (15)**Burchellii** (Kunze) A. Br. (16)**biloba** Willd. (17)**nubica** A. Br. (18)**trichocarpa** Bremek. (19)**villifolia** Bremek. & Oberm. ex Alston & Schelpe (20)(*M. villosa* Burch. ex Bremek. & Oberm.)

GLEICHENIACEAE

Dicranopteris Bernh.**linearis** (Burm.) Underw. (21) (*Gleichenia linearis* (Burm.) Clarke)**Sticherus** Presl**umbraculiferus** (Kunze) Ching (22) (*G. umbraculifera* Kunze)**Gleichenia** Sm.**polypodioides** (L.) Sm. (23)

HYMENOPHYLLACEAE

Trichomanes L.**melanotrichum** Schlecht. (24) (*T. pyxidiferum* L. of Sim)**montanum** Hook. (25)**rigidum** Sw. (26)

Hymenophyllum Sm.

- capillare** Desv. (27) (*H. lineare* Sw. of Sim)
fumaroides Willd.
Kuhnii C. Chr. (28) (*H. Henkelii* Sim)
Marlothii Brause
tunbridgense (L.) Sm.
uncinatum Sim (29)

CYATHEACEAE

Hemitelia R. Br. (30)

- capensis** (L. fil.) Kaulf. (31)

Cyathea Sm.

- Holstii** Hieron. (31)
Deckenii Kuhn (32)
Dregei Kunze
Thomsoni Bak. (33)

POLYPODIACEAE

Subfam. DENNSTAEDTIOIDEAE

Microlepia Presl

- speluncae** (L.) Moore

Hypolepis Bernh.

- sparsisora** Kuhn
Schimperi Hook

Subfam. LINDSAYOIDEAE

Schizoloma Gaud.

- ensifolium** (Sw.) J. Sm.

Subfam. DAVALLIOIDEAE

Davallia Sm.

- chaerophylloides** (Poir.) Steud.

Nephrolepis Schott

- biserrata** (Sw.) Schott
undulata (Afz.) J. Sm. (34) (*N. cordifolia* (L.) Presl of Sim)
[**exaltata** (L.) Schott]

Arthropteris J. Sm.

- orientalis** (Gmel.) Posth. (35) (*Dryopteris orientalis* (Gmel.) C. Chr.)
monocarpa (Cordem.) C. Chr. (36)

Subfam. OLEANDROIDEAE

Oleandra Cav.**distenta** Kunze (37)(*O. articulata* Cav. of Sim)

Subfam. PTERIDIOIDEAE

Pteridium Gleditsch**aquilinum** (L.) Kuhn (38)**Lonchitis** L.**natalensis** Hook. (39)(*L. pubescens* Willd. of Sim in part)**steno-chlamys** Fée (39)(*L. pubescens* Willd. of Sim in part)**Histiopteris** J. Sm.**incisa** (Thunb.) J. Sm.**Pteris** L.**vittata** L. (40)(*P. longifolia* L. of Sim)**cretica** L.**dentata** Forsk.**quadriaurita** Retz. (41)(*P. biaurita* L. of Sim)**pteridioides** (Hook.) Ballard (42)(*P. brevisora* Bak.)**Buchanani** Bak. ex Sim**Actiniopteris** Link**australis** (L. fil.) Link (43)**Acrostichum** L.**aureum** L.**Stenochlaena** J. Sm.**tenuifolia** (Desv.) Moore

Subfam. GYMNOGRAMMEOIDEAE

Ceratopteris Brongn.**cornuta** Le Prieur (44)(*C. thalictroides* (L.) Brongn. of Sim)**Anogramma** Link**leptophylla** (L.) Link**Pityrogramma** Link (45)**argentea** (Willd.) Domin(*Gymnogramma argentea* (Willd.) Mett.) β **aurea** (Desv.) Domin(*Gymnogramma aurea* Desv.)[**austroamericana** Domin] (46)(*Ceropteris calomelanos* (L.) Underw. of Sim)

Adiantum L.

- caudatum** L. (47)
philippense L. (48) (*A. lunulatum* Burm.)
soboliferum Wall. ex Hook. (49)
patens Willd. var. **Oatesii** (Bak.) Ballard (50)
(*A. Oatesii* Bak.)
hispidulum Sw.
Capillus-Veneris L. (*A. Paradiseae* Bak.)
aethiopicum L. (51) (*A. Poirerii* Wikstr. of Sim)
Poirerii Wikstr. (51) (*A. aethiopicum* L. of Sim)
sulphureum Kaulf.
Raddianum Presl (52) (*A. cuneatum* L. & F. non Forst.)

Cheilanthes Sw.

- capensis** (Thunb.) Sw. (53) (*Adiantopsis capensis* (Thunb.) Fée)
depauperata Bak.
hirta Sw.
parviloba Sw.
induta Kunze
multifida Sw. (54) (*C. Bolusii* Bak.)
farinosa Kaulf.
Bergiana Schlecht. ex Kunze (55)
(*Hypolepis Bergiana* (Schlecht.) Hook.)

Notholaena R. Br.

- Rawsoni** Pappe
Buchanani Bak.
Eckloniana Kunze
Marlothii Hieron. (56)
inaequalis Kunze
bipinnata Sim

Pellaea Link

- andromedifolia** (Kaulf.) Fée (57)
dura (Willd.) Bak.
auriculata (Thunb.) Fée
lancifolia Bak. (58)
Goudotii (Kunze) C. Chr.
quadripinnata (Forsk.) Prantl
namaquensis Bak.
involuta Bak.
viridis (Forsk.) Prantl (59)
 β **macrophylla** Sim
 γ **glauca** Sim

Doniana (J. Sm.) Hook.

calomelanos (Sw.) Link (60) (*P. hastata* (Thunb.) Prantl)

Swynnertoniana Sim

deltoidea (Kunze) Bak. (61) (*Doryopteris deltoidea* (Kunze) Diels)

robusta (Kunze) Hook. (61) (*Doryopteris robusta* Kunze)

pteroides (L.) Prantl

Doryopteris J. Sm.

concolor (Langsd. & Fisch.) Kuhn (62)

Subfam. VITTARIOIDEAE

Vittaria J. Sm.

isoetifolia Bory

Volkensii Hieron. (63)

Hildebrandtii Hieron. (64) (*V. scolopendrina* (Bory) Thw. of Sim)

Subfam. BLECHNOIDEAE

Blechnum L. (65)

inflexum (Kunze) Kuhn

nudum (Labill.) Mett. ex Luerss. (66)

attenuatum (Sw.) Mett.

tabulare (Thunb.) Kuhn

capense (L.) Schlecht.

punctulatum Sw.

f. **glanduliferum** Schelpe

β **Atherstonei** (Pappe & Rawson) Sim

γ **intermedium** Sim

δ **Krebsii** (Kunze) Sim

australe L.

f. **glanduliferum** Schelpe (*B. auriculatum* Cav. of Sim)

Doodia R. Br.

[**media** R. Br.] (67)

Subfam. ASPLENIOIDEAE

Asplenium L.

Holstii Hieron. (68)

Kraussii Moore ex Hook.

Trichomanes L.

platyneuron (L.) Oakes

monanthes L.

lunulatum Sw.

erectum Bory (69) (*A. lunulatum* Sw. var. *erectum* (Bory) Sim)

β lobatum (Pappe & Rawson)¹ Alston & Schelpe comb. nov.

γ Zeyheri (Pappe & Rawson)² Alston & Schelpe comb. nov.

inaequaelaterale Hieron. (70) (*A. laetum* Sw. of Sim)

protensum Schrad.

formosum Willd. (71)

obscurum Blume (72)

unilaterale Lam.

varians Wall. ex Hook & Grev.

pumilum Sw. var. **hymenophylloides** Fée nov. (73)

(*A. Eylesii* Sim)

Marlothii Hieron. (73)

anisophyllum Kunze

gemmiferum Schrad.

β discolor (Pappe & Rawson) Sim

γ flexuosum (Schrad.) Sim

prionitis Kunze

Friesiorum C. Chr. (74)

Christii C. Chr. (75)

Adiantum-nigrum L.

solidum Kunze

splendens Kunze (76) (*A. cuneatum* Lam. of Sim)

aethiopicum (Burm.) Becherer (77) (*A. praemorsum* Sw.)

Buettneri Hieron. (78)

blastophorum Hieron. (79)

abyssinicum Fée

rutaefolium (Berg.) Kunze (80) (*A. bipinnatum* (Forsk) C. Chr.)

Dregeanum Kunze

Sandersoni Hook.

Thunbergii Kunze (81) (*A. auriculatum* Kuhn)

Mannii Hook.

Loxoscaphe Moore

theciferum (HBK) Moore var. **concinna** (Schrad.) C. Chr. (82)

(*Asplenium theciferum* (HBK) Mett. of Sim)

nigrescens (Hook.) Moore (83) (*Asplenium Hollandii* Sim)

Ceterach Lam.

cordatum (Thunb.) Desv.

(1) *Asplenium lobatum* Pappe & Rawson Syn. Fil. Afr. Austr. 22 (1858).

(2) *A. Zeyheri* Pappe & Rawson Syn. Fil. Afr. Austr. 18 (1858).

Diplazium Sw.**zanzibaricum** (Bak.) C. Chr. (84)**Athyrium** Roth.**scandicinum** (Willd.) Presl**schimper** Mougl.**Cystopteris** Bernh.**fragilis** (L.) Bernh.

Subfam. WOODSIOIDEAE

Woodsia R. Br.**Burgessiana** Gerr.

Subfam. DRYOPTERIDOIDEAE

Dryopteris Adanson**Bergiana** (Schlecht.) O. Ktze.**membranifera** C. Chr. (85)**impressus** (Desv.) Posth. (86)**thelypteris** (L.) Gray var. **squamigera** Schlecht. (87)**gongyloides** (Schk.) O. Ktze.**dentata** (Forsk.) C. Chr. (88) (*D. mollis* (Jacq.) Hieron of Sim;
(*D. mauritiana* (Fée) C. Chr. of
Sim)**venulosus** (Hook.) O. Ktze. (89)**prolifera** (Retz.) C. Chr.**silvatica** (Pappe & Rawson) C. Chr.**inaequalis** (Schlecht.) O. Ktze.**Pentheri** (Krass.) C. Chr. (*D. elongata* (Sw.) Sim non O. Ktze.) (91)**kilemensis** (Kuhn) C. Chr. (92)**athamantica** (Kunze) O. Ktze.**squamiseta** (Hook.) O. Ktze. (93) (*D. Buchanani* (Bak.) O. Ktze.)**crenata** (Forsk.) O. Ktze.**cirrhusa** (Schum.) O. Ktze. (94)**lanuginosa** (Willd.) C. Chr.**africana** (Desv.) C. Chr.**foliosa** C. Chr. (95) (*Polystichum aristatum* of Sim)**Polystichum** Roth.**adiantiforme** (Forst.) J. Sm.**lucidum** (Burm) Becherer (96) (*P. pungens* (Kaulf.) Presl)**ammifolium** (Poir.) C. Chr. (97) (*P. aculeatum* of Sim)**luctuosum** Moore**Macleaii** (Bak.) Diels

Cyrtomium Presl

- caryotideum** (Wall.) Presl var. **micropteron** (Kunze) C. Chr. (98)
(*C. falcatum* (L. fil.) Pr. of Sim)

Didymochlaena Desv.

- truncatula** (Sw.) J. Sm.

Tectaria Cav.

- gemmifera** (Fée) Alston (99) (*Aspidium cicutarium* (L.) Sw. of Sim)

Bolbitis Schott.

- Heudelotii** (Bory) Alston (100) (*Leptochilus Heudelotii* (Bory) C. Chr.)

Lomariopsis Fée

- Warneckii** Hieron. (101)

Subfam. POLYPODIOIDEAE

Platyserium Desv.

- angolense** Welw.

- alcicorne** (Willem.) Desv. (102) (*P. bifurcatum* (Cav.) C. Chr. of Sim)

Pleopeltis Humb. & Bonpl.

- lanceolata** (L.) Kaulf. (*Polypodium lanceolatum* L.)

Loxogramme Presl

- lanceolatum** (Sw.) Presl (*Polypodium loxogramme* Mett.)

Pyrrosia Mirbel (103)

- africana** (Kunze) Ballard (*Cyclophorus africanus* (Kunze) C. Chr.)

- rhodesiana** (C. Chr.) Schelpe (*Cyclophorus rhodesianus* C. Chr.)

- Schimperiana** (Mett.) Alston

- lanceolata** (L.) Farwell

Polypodium L.

- vulgare** L.

- rigescens** Bory (104)

- scolopendria** Burm. fil. (105) (*P. phymatodes* L.)

- Schraderi** Mett. (106) (*P. lineare* Thunb. of Sim)

- Pappei** Mett.

- lycopodioides** L.

- excavatum** Bory (107)

- polycarpon** Cav. (108) (*P. punctatum* (L.) Sw. of Sim)

- magellanicum** (Desv.) Copeland (109)

- Eckloni** Kunze (110) (*P. polypodioides* (L.) Hitch. of Sim)

- ensiforme** Thunb.

Subfam. ELAPHOGLOSSOIDEAE

Elaphoglossum Schott

- conforme** (Sw.) Schott (111)

isabelense Brause (112)

angustatum (Schrad.) Hieron. (113)

(*E. petiolatum* (Sw.) Urban of Sim)

salicifolium (Willd. ex Kaulf.) Alston (114)

hybridum (Bory) Moore

Aubertii (Desv.) Moore

Kuhnii Hieron. (115)

spathulatum (Bory) Moore

AZOLLACEAE

Azolla Lam.

pinnata R. Br.

1. *Lycopodium nudum* L., Sp. Pl., ed. iii, 2, 1564 (1764) has priority. *Psilotum natalensis* Gandoger, Bull. Soc. Bot. Franc., 66, 306 (1919) does not appear to be distinct, but the species *L. nudum*, as defined at present, is known to be polyploid.

2. Nessel (1939) in Die Barlappgewächse (Jena), monographed the genus *Lycopodium* L. and recognised two genera, *Urostachys* and *Lycopodium*. In addition to the species quoted by Sim (1915), he records *Urostachys Hieronymii* Hert. from Kamaggas, Klein Namaland (*Schulze* 194) and *U. Holstii* (Hieron.) Hert. from Natal (*Wylie s.n.*, 1906). These plants are possibly *Lycopodium gnidioides* L. fil. and *L. dacrydioides* Bak. respectively.

3. *Lycopodium ophioglossoides* Lam. was collected by Schlechter (No. 4758) in the Pietersburg division of the Transvaal where it has been found in recent years. It has also been collected in Southern Rhodesia, Nyumkombe, *Gilliland* 875 (BM, J).

4. Nessel (1939) recognises a number of varieties of *Lycopodium cernuum* L. and *L. clavatum* L. He records the varieties *Heeschii* and *secundum* of *L. cernuum*, and the varieties *trichiatum*, *inflexum* and *natalense* of *L. clavatum* from South Africa.

5. *Lycopodium complanatum* L. has been found in recent years on mountains in the Caledon, George, Humansdorp, Stellenbosch, Swellendam and Uniondale divisions of the Cape Province, e.g. Hottentots Holland, *Esterhuysen* 3558 (BOL, CTM, PRE); Helpmekaar, *Compton* 4597 (BOL, NBG).

6. Ballard (1950), Amer. Fern Journ., 40, 74—83, t. 9, 10, regards the African *L. sarcocaulon* A. Br. & Welw. as a distinct species. It has been found in Southern Rhodesia, Nuza Plateau, *Gilliland* 1262 (BM); Matopo Hills, *Eyles* 51 (BM) and in Natal, Pietermaritzburg Table Mountain, *Huntley s.n.* (BM). Nessel (1949) recognises a number of varieties of *L. carolinianum* and records the varieties *biceps*, *brevipedunculatum*, *meridionale*, *funiculosum*, *sarcocaulon* and *tuberosum* from Southern Africa. Some of these may be habitat forms and the observation of plants under different environmental conditions in culture is necessary.

7. Alston (1939), Journ. Bot., 77, 221—224, pl. 620, has revised the South African species. A number of the specific epithets used by Sim (1915) have been reduced to synonyms. The terminal arista of the leaves is white and opaque in *Selaginella Dregei* and translucent in *S. caffrorum*.

8. Miss Duthie (1929) described three new species of Isoetes in Trans. Roy. Soc. S. Afr., 17, 321—332. *I. capensis* Duthie is recorded from temporary vleis and wet ground on the Cape Peninsula, *I. stellenbosiensis* Duthie from the Cape Peninsula and the Stellenbosch division, and *I. Stephansenii* Duthie from the Stellenbosch division only. (Specimens of these three species are in the following herbaria: BOL, CTM, NH, PRE)

9. Copeland (1947) in his Genera Filicum places *Ophioglossum Bergianum* Schlecht. in the monotypic genus *Rhizoglossum* Presl.

10. *Ophioglossum sarcophyllum* Desv. appears to be the correct name for the plants previously referred to *O. capense* Sw. His *O. capense* was not maintained by Swartz in his Synopsis Filicum so presumably he reduced it to *O. nudicaule* L. fil. Clausen (1938) in his monograph of the Ophioglossaceae, Mem. Torrey Bot. Club, 19, prefers to regard the name *O. capense* Sw. as a nomen dubium. Clausen is of the opinion that some of the material referred to *O. capense* Sw. is *O. pedunculatum* Desv. which has an enlarged bulbous rootstock and has the principal veins forming large primary areoles in which numerous veinlets form secondary areoles. *O. lusitanicum* has been recorded for South Africa, probably in error or by misidentification.

11. Although the name *Marattia fraxinea* Sm. (sens. lat.) is used here, the range of pinna and pinnule size and shape requires investigation and comparison with material from East and West Africa and the Mascarene Islands.

12. *Lygodium Brycei* Bak. is regarded as a synonym of *L. Kerstenii* Kuhn.

13. *Anemia Simii* Tardieu Blot (1951), *Notulae Systematicae*, 14, 208, with glabrous or subglabrous fertile pinnae and the fertile pinnae of the frond longer than the sterile part is different from the tropical African *A. Schimperiana* with pubescent fertile pinnae and with the fertile pinnae as long as or shorter than the sterile part of the frond. Both are distinct from the American *A. anthriscifolia* Schrad.

14. *Marsilea ephippiocarpa* Alston in *Journ. Bot.*, 68, 118 (1930) has numerous sporocarps on each stalk in contrast to the other South African species in which the sporocarps are solitary. It is known from Bechuanaland, Ngamiland, Pan south of Kopjies, *Van Son s.n.* (BM, PRE, TRV); Southern Rhodesia, nr. Fort Victoria, *Rendle* 306 (BM); South West Africa, Mt. Omuranda, nr. Matakoko, *Dinter* 7207 (BM); Transvaal, Zoutpansberg, Kloppersfontein, *Obermeyer* 645 (TRV), Sabie Reserve, *Young s.n.* (BM, J); Natal, Albert Falls, *Comins s.n.* (BM).

15. Roux (1929) in *S. Afr. Journ. Sci.*, 26, 311—317, has investigated the ecological forms of *M. macrocarpa*.

16. *Marsilea Burchellii* (Kunze) A. Br. with small round sporocarps is regarded as distinct from *M. macrocarpa*.

17. *Marsilea biloba* Willd. with spreading hairs on the sporocarps is regarded as distinct. Specimens thought by Dinter to represent a new species probably belong here.

18. *Marsilea nubica* A. Br. with sub-sessile, glabrous sporocarps has been found in South West Africa: Ovamboland, between Ukualonkathi and Tamamosa, *Barnard s.n.* (CTM 27172); Grootfontein "Keibeb", *Schweickerdt* 2180, 2184 (BM).

19. *Marsilea trichocarpa* Bremekamp in *Ann. Tvl. Mus.*, 15, 234 (1933) with spreading hairs on the sporocarps has been recorded from the Transvaal, Pietersburg, Vivo Vlei, *Bremekamp & Schweickerdt* 193 (TRV).

20. No reference to a valid publication of *M. villifolia* Bremek. and Obermeyer has been found. This name was proposed in substitution for *M. villosa* Burch. ex. Bremek. & Oberm. (*Ann. Tvl. Mus.*, 16, 400 (1936)) non Kaulf.

21. The division of the *Gleicheniae* into *Dicranopteris*, *Sticherus* and *Gleichenia* follows Christensen (1938) in the *Manual of Pteridology* and Copeland (1947). *Dicranopteris linearis* (Burm.) Underwood in *Bull. Torrey bot. Club*, 24, 250 (1907).

22. *Sticherus umbraculiferus* (Kunze) Ching in *Sunyatsenia*, 5, 285 (1940).

23. Fronds of *Gleichenia polypodioides* may or may not be glaucous, a character which seems to be influenced by habitat.

24. The African *Trichomanes melanotrichum* Schlecht. is regarded as distinct from the American *T. pyxidiferum* L.

25. The South African plants of *Trichomanes montanum* Hook. may constitute a recognisable geographical segregate. The name *T. Robinsoni* Bak. in Journ. Linn. Soc. (Bot.), 9, could be applied if this segregate is found to be sufficiently distinct.

26. Probably most of the African material at present referred to *T. rigidum* Sw. should be referred to *T. cupressoides* Desv. but more than one species may be present in South Africa.

27. The African material previously grouped under *H. lineare* Sw. is regarded as distinct and is referred to *H. capillare* Desv.

28. *Hymenophyllum Henkelii* Sim in S. Afr. Journ. Sci., 17, 283 (1923) is a synonym of *H. Kuhnii* C. Chr., Ind. Fil., 363 (1905).

29. *H. uncinatum* Sim is possibly only a form of *H. peltatum* (Poir.) Desv.

30. Copeland (1947), Genera Filicum, sinks *Hemitelia* in *Cyathea*.

31. *Cyathea Holstii* Hieron. in Pflanzenwelt Ostaf., C, 88 (1895) a short-trunked species with bi-pinnate fronds has been collected in Southern Rhodesia, Mt. Selinda forest, Longfield 11 (BM).

32. *Cyathea Deckenii* Kuhn in v. Deck. Reis., 3, 3, Bot., 57 (1879) with characteristic spiny stipes and rachises has been collected in the following localities: Southern Rhodesia: Umtali, Vumba Mountains, Fisher 1113 (NU); Umtali, Eyles 4478 (PRE); Inyanga, Eyles 2602 (PRE); Gazaland, Chirinda, Swynnerton 817 (BM); Ziani Forest, M'Besa Estate, Gilliland 1750 (BM); Portuguese East Africa: Manica e Sofala, Mavita, Rotanda, Mendonça 2651 (BM); Serra de Mavita, Mendonça 1472 (BM).

33. Available material is inadequate to show if *Cyathea Thomsoni* Bak., in Journ. Bot., (1881) 180 (Type Loc. Nyasaland) to which Baker referred Swynnerton 817 (K) from Chirinda, Southern Rhodesia, and its possible synonyms *C. mossambicensis* Bak. in Ann. Bot., 5, 185 (1891) and *C. zambesiaca* Bak., Ann. Bot., 8, 121 (1894) constitute a good species.

34. The African material is considered distinct from the American specimens of *Nephrolepis cordifolia* (L.) Presl.

35. In Supplement II of the Index Filicum, Christensen (1917) transferred *Dryopteris orientalis* (Gmel.) C. Chr. to *Arthropteris*.

36. *Arthropteris monocarpa* (Cordem.) C. Chr., Dansk Bot. Arkiv, 7, 72 (1932) in which the articulation of the rachis occurs in the lower half of the rachis (instead of the upper half as in *A. orientalis*), has been found in Natal, Krantzklouf, *Schelte* 3140 (BM) and in Southern Rhodesia: Umtali, nr. Vumba Hotel, *Fisher & Schweickhardt* 207 (BM); Tsaptsa Pass, *Gilliland* 2087 (BM).

37. *Oleandra distenta* Kunze is the oldest name applied to the African species. *O. africana* R. Bon. (1924) is a later synonym.

38. In his revision of the genus *Pteridium*, Tryon in *Rhodora*, 43, 505 (1941) recognised a number of subspecies and varieties. The Southern African material is cited under ssp. *typicum*.

39. Kümmerle (1915) in his revision of *Lonchitis* (Bot. Közlemenjeck, 14, 166) has distinguished a number of species in the *L. pubescens* group. The two species known to occur in South Africa are *L. natalensis* Hook. and *L. stenochlamys* Fée. The latter has been regarded by some authors as synonymous with *L. glabra* Bory., but it is thought that this name has been misapplied. Plates 131 and 132 in Sim, *Ferns of South Africa*, ed. ii, (1915) are of *L. natalensis* and *L. stenochlamys* respectively.

40. African *Pteris vittata* L. is distinct from the American *P. longifolia* L.

41. The African *Pteris quadriaurita* Retz. is regarded as distinct from *P. biaurita* L. The name *P. quadriaurita* is applied here in a broad sense and it is possible that the South African material constitutes a good species which could be referred to *P. Abrahami* Hieron. or *P. catoptera* Kunze.

42. *Pteris brevisora* Bak. is antedated by *P. pteridioides* (Hook.) Ballard, *Kew. Bull.*, (1937) 348 (*Hypolepis* Hook.).

43. The name *Actiniopteris australis* (L. fil.) Link is used here in a broad sense. *A. radiata* (L.) Link is possibly distinct.

44. Much confusion exists in the nomenclature of the species of *Ceratopteris*, which is mainly due to the inadequacy of material. Further observations of plants in culture, from juvenile to mature stages, is required. The African plants appear to belong to *C. cornuta* Le Prieur. *Ann. sc. nat.*, 19, 103 (1830).

45. *Pityrogramma* is maintained as a genus by Christensen (1934) in Supplement III to the *Index Filicum*. *P. aurea* (Willd.) C. Chr. is regarded here as a variety of *P. argentea* (Willd.) Domin following Domin (1929), "The hybrids and garden forms of the genus *Pityrogramma* (Link)", *Rozpr. II Tr. České Akademie*, 38, No. 4.

46. *Pityrogramma calomelanos* (L.) Link has become established rapidly as a weed in countries to which it has been introduced. The pattern of spread of *Pityrogramma austroamericana* Domin in Natal from Durban indicates that this species has been introduced. (Domin (1928) Publ. Fac. Sci. Univ. Charles, No. 8, 7 and Kew. Bull. (1929) 22).

47. The name *Adiantum caudatum* L. is used here in a broad sense. Some African material may be segregated under *A. incisum* Forsk.

48. *Adiantum lunulatum* Burm. (1768) is antedated by *A. philippense* L., Sp. Pl., 1094 (1753). See Christensen, Ind. Fil., Suppl. III, 19.

49. *Adiantum soboliferum* Wall. ex Hook., Sp. Fil., 2, 13, t. 74 A (1851) (Syn. *A. Mettenii* Kuhn ex Hook. & Bak.) differs from *A. philippense* L. in that it has the rachis and pinna petioles winged to a width of 0.7 mm. It has been found in Portuguese East Africa, Manica e Sofala: Mosswise, Gogoi, Sitatonga, *Pedro e Pedrogão* 7528 (BM); Mavita, Vale do R. Rotanda, *Pedro e Pedrogão* 6025 (BM).

50. *Adiantum patens* Willd. var. *Oatesii* (Bak.) Ballard in Kew. Bull. (1937) 31.

51. The fact that Sim (1915) confused the identity of *Adiantum aethiopicum* L. and *A. Poiretii* Wikstr. was pointed out by Schelpe in Journ. S. Afr. Bot., 15, 43 (1949).

52. *A. Raddianum* Presl (*A. cuneatum* Langsd. & Fisch. non Forst.) a species common in cultivation may have escaped frequently. It was recorded by Bonaparte in N. Pterid., 10, 135 (1920) from the Transvaal Drakensberg (*Junod* 4049). It has also been found in Southern Rhodesia, Umtali, Black Mountain Inn, *Chase s.n.* (BM, NH); Mrs. Strickland's Farm, Nodzi, Penhalonga, *Gilliland* 802 (BM); and Natal, Qudeni Forest, *Fisher* 885 (BM, NH) and in the environs of Pietermaritzburg.

53. In accordance with the view of Christensen (1934), Ind. Fil., Suppl. III, 18, *Adiantopsis capensis* is transferred to Cheilanthes.

54. It is doubtful whether *Cheilanthes Bolusii* Bak. is distinct from *C. multifida* Sw. *C. Dinteri* Brause in Beitrage zur Flora von Afrika, 45 (1915) is reputed to differ from *C. multifida* in that the ultimate pinnae are not cut to the rachis. It is considered to be synonymous with *C. multifida*.

55. The view of Christensen (1932) in Pteridophyta of Madagascar that *Hypolepis Bergiana* (Schlecht.) Hook. should be placed in the genus Cheilanthes, subgenus Hypolepidopsis, is upheld.

56. *Notholaena Marlothii* Hieron. in Engl. Jahrb., 46, 384 (1911) is regarded as distinct from *N. Eckloniana* Kunze. The costae of the pinnae in *N. Eckloniana* are clothed with lanceolate scales and hairs, whereas those of *N. Marlothii* are covered by white hairs only. *N. Marlothii* is known from South West Africa: Okahandja, *Dinter* 386 (BM); Grootfontein, "Ossa", on limestone, *Schweickerdt* 2125 (BM); Grootfontein, Hoba Hills, *Schweickerdt* 2105 (BM); Hoffnung, *Jordan s.n.* (BM).

57. *Pellaea andromedifolia* (Kaulf.) Fée has been found on a number of occasions since Drège's original collection in South Africa. It is known from the following localities in the Cape Province. Beaufort West: Klipbank, *Pillans s.n.* (BOL, PRE). Laingsburg: n'Gaap Kop, *Compton* 9287, 12619 (NBG), *Esterhuysen* 3248 (BOL); Whitehill Ridge, *Compton* 3116 (BOL); Witteberg foothills, *Compton* 2961 (BOL); Laingsburg, *Marloth* 2532 (PRE); Sutherland: Klein Roggeveld, Schietfontein, *Compton* 8120 (NBG).

58. *Pellaea lancifolia* Bak. is possibly only a deeply cut form of *P. auriculata* (Thunb.) Fée.

59. The varieties of *Pellaea viridis* (Forsk.) Prantl recognised by Sim (1915) are retained but no satisfactory characters have been found to delimit them. *P. leucomelas* Bak. is synonymous with the var. *glauca*.

60. The correct application of the name *Pellaea calomelanos* (Sw.) Link was pointed out by Ballard, Kew. Bull. (1937) 346.

61. Although Tryon (1942) in Contrib. Gray Herb., 143, referred *Doryopteris deltoidea* (Kunze) Diels and *D. robusta* Kunze to Cheilanthes, their soral characters show a greater similarity to those of the genus *Pellaea*.

62. Tryon (1942) in Contrib. Gray Herb., 143, has segregated a var. *Kirkii* (Hook.) Fries which has interrupted cheilanthoid sori. The variability in the continuity of the sori renders the validity of this variety doubtful.

63. *Vittaria Volkensii* Hieron., Engl. Jahrb., 53, 428 (1915) which is easily distinguishable from *V. isoetifolia* in that it has a black stipe, has been collected in Southern Rhodesia and Portuguese East Africa. Southern Rhodesia: Chimanimani Mtns., *Swynnerton* 802 (BM); Vumba, *Wild* 2843 (BM); Umtarazi Forest, *Gilliland* 1966 (BM). Portuguese East Africa: Mavita, *Mendonça* 2645 (BM); Macequece, *Pedro e Pedrogão* 6861 (BM).

64. From Sim's figure (Ferns of South Africa, ed. ii, pl. 186) and his description it appears that his plant was *Vittaria Hildebrandtii* Hieron. (Engl. Jahrb., 53, 419 (1915)) and not the much larger *V. scolopendrina* (Bory) Thw.

65. The African species of *Blechnum* have been revised by Schelpe in Journ. Linn. Soc., Lond., 53, 487—510 (1952). Glanduliferous forms of both *B. punctulatum* and *B. australe* are described.

66. *Blechnum nudum* (Labill.) Mett. ex Luer. was discovered in the Langekloof, Jonkershoek, Stellenbosch div., Schelpe 1866 (BM, BOL).

67. *Doodia media* R. Br., an Australasian fern, with small sharply serrate pinnae, has been found in the environs of Pietermaritzburg, e.g. De Villiers 33 (NU), Johnstone 65 (NU). It is thought to be an escape from cultivation.

68. *Asplenium Holstii* Hieron. (Engl. Jahrb., 46, 348 (1911)) with large simple fronds bearing two rows of long, oblique, linear sori has been found in Portuguese East Africa: Garuso, Fisher & Schweickerdt 338 (BM), 501 (BM, NU), Mendonça 3592 (BM).

69. *Asplenium erectum* Bory is considered to be distinct from *A. lunulatum* Sw. The var. *lobatum* appears to be synonymous with *A. usambarense* Hieron. (*A. lobatum* Pappe & Rawson, Syn. Fil. Afr. Austr. 22 (1858). *A. Zeyheri* Pappe & Rawson, Syn. Fil. Afr. Austr., 18 (1858)).

70. The African material referred to *Asplenium laetum* Sw. is segregated here under *A. inaequalaterale* Willd., Sp., 5, 322 (1810).

71. *Asplenium formosum* Willd., Sp., 5, 329 (1810) which differs from *A. protensum* in having a shiny black stipe and rachis has been found in Portuguese East Africa: Garuso, Fisher & Schweickerdt 497 (NU), 519 (BM, NU).

72. *Asplenium obscurum* Blume, Enum., 181 (1828) which is distinguished from *A. unilaterale* by its larger size, thicker texture and dull green stipe and rachis has been found in Southern Rhodesia: Melsetter Distr., Mt. Selinda, Longfield 13 (BM). and in Portuguese East Africa: Garuso, "Jaegersburg", Fisher & Schweickerdt 500 (BM); Garuso Forest, Schweickerdt 2032 (BM).

73. *Asplenium Eylesii* Sim (Ferns S. Afr., ed. ii, 147 (1915)) has been considered to be synonymous with *A. pumilum* Sw. var. *hymenophylloides* (Fée) but is retained as a species by Christensen. (*A. hymenophylloides* Fée, 7 mem., t. 15, f. 4 (1857)) *A. Marlothii* Hieron., Engl. Jahrb., 46, 357 (1911) is probably synonymous with this.

74. *Asplenium Friesiorum* C. Chr., Notizbl. Bot. Gart. Berlin, 9, 181 (1924) is distinct from the American *A. serra* Langsd. & Fisch.; see Ballard, Ic. Plant., ser. 5, 4, pl. 3366 (1938).

75. *Asplenium Christii* Hieron., in Engl. Pflanzenwelt Ostafri., C, 82 (1895) has been found in Natal, Eshowe, *Forbes* 690 (NH) and in Southern Rhodesia, Chirinda Forest, Mt. Selinda, *Swynnerton* 842, 843, 853 (BM), *Fisher & Schweickerdt* 384 (BM).

76. The South African specimens previously referred to the American *Asplenium cuneatum* Lam. are segregated here under *A. splendens* Kunze.

77. *Asplenium aethiopicum* (Burm.) Becherer antedates *A. praemorsum* Sw.

78. *Asplenium Buettneri* Hieron. in Deutsche Zentralafri. Exp., 2, 23 (1910) differs from *A. aethiopicum* in having less divided and more broadly cuneate segments. It has been found in Portuguese East Africa, Manica e Sofala: Cheringoma, Durundi, *Torre* 4208 (BM); Chimoio, Xiluvo Mtns., *Pedro e Pedrogão* 9145 (BM); Mosswize, Busi R., *Pedro e Pedrogão* 7497 (BM); Vila Machaido, Chiluvo Mtns., *Mendonça* 3939a (BM).

79. *Asplenium blastophorum* Hieron., Engl. Jahrb., 46, 378 (1911) is distinguished from *A. aethiopicum* by having broader proliferate fronds and having strongly winged spores. It has been found in Southern Rhodesia: Chirinda, *Swynnerton* 845 (BM); Mt. Selinda, *Longfield* 1 (BM), *Fisher & Schweickerdt* 383 (BM) and in Portuguese East Africa: Garuso, "Jaegersburg", *Fisher & Schweickerdt* 506, 522 (BM).

80. *Asplenium rutaefolium* (Berg.) Kunze is the correct name since both *A. bipinnatum* (Forsk.) C. Chr. and *A. achilleifolium* (Lam.) C. Chr. are antedated by earlier homonyms. In his Pteridophyta of Madagascar, Christensen (1932) refers this plant to *A. achilleifolium* (Lam.) C. Chr. var. *bipinnatum* (Forsk.) C. Chr. *A. linearilobum* Peter is a possible synonym.

81. *A. Thunbergii* Kunze (1836) antedates *A. auriculatum* (Thunb.) Kuhn (1868).

82. Christensen (1932) and Copeland (1947) are followed in maintaining the genus *Loxoscaphe*. It is thought that the African material should be segregated from the typical American *L. thecifera* (HBK) Moore under the variety *concinna* (Schrad.) C. Chr.

83. *Asplenium Hollandii* Sim and *A. hypomelas* Kuhn are synonymous with *Loxoscaphe nigrescens* (Hook.) Moore.

84. *Diplazium zanzibaricum* (Bak.) C. Chr. has been collected in Southern Rhodesia, Melsetter, Bridal Veil Falls, *Fisher* 1463 (BM, NU) Umtali, Vumba Mtns., *Fisher* 1323, 1324, 1541, 1558 (BM, NU) and

from the Transvaal, Haenartsburg, *Enslin & Schweickerdt s.n.* (BM, PRU). Portuguese East Africa, Garuso Mountain, *Schweickerdt* 2029 (BM, PRU). The African species of this genus are in need of revision, and it is possible that this species may be conspecific with *D. arborescens* (Bory) Sw. (sens. lat.).

85. *Dryopteris membranifera* C. Chr. in Bonap., N. Pterid., 16, 170, t. 2 (1925) with a frond that is reduced below and with long white hairs on the indusia and with the veins of the pinnae not anastomosing, has been found in Natal, Southern Rhodesia and in Portuguese East Africa, e.g. Natal, Kranzkloof, *Schelpé* 1143 (BM, NU); Southern Rhodesia, Honde Valley, *Gilliland* 1124 (BM).

86. *Dryopteris impressus* (Desv.) Posth., Vorh. K. Akad. Wet. Amst., ser. 2, 36, 5, 14 (1937) has attenuated pinnae up to 33 cm. long on which the veins do not anastomose below the sinuses. Minute yellow glands are crowded along the ventral surface of the veins and the indusia bear yellow glands and very thin white hairs. It has been found in Portuguese East Africa, Manica e Sofala, Cheringoma, Inhaminga, *Mendonça* 4372 (BM).

87. The African material of *Dryopteris Thelypteris* (L.) Gray differs from the European typical material in having scales on the costae and is segregated under the variety *squamigera* Schlecht.

88. *Dryopteris dentata* (Forsk.) C. Chr. has priority over *D. mollis* (Jacq.) Hieron. *D. quadrangularis* (Fée) Alston may be distinct.

89. *Dryopteris venulosus* (Hook.) O. Ktze., Rev., 2, 814 (1827) has a creeping rhizome, fronds which are decrescent below, one or two pairs of veinlets anastomosing below the sinuses, the veinlets being subglabrous. It has been found in Portuguese East Africa, Manica e Sofala: Chimoio, Gondola, *Mendonça* 28 (BM); Manica, serra da Mavita, *Mendonça* 1422 (BM).

90. *Dryopteris Friesii* Brause is considered conspecific with *D. silvatica* (Pappe & Rawson) C. Chr.

91. *Dryopteris Pentheri* (Krass.) C. Chr. appears to be the valid name for *D. elongata* (Sw.) Sim non O. Ktze.

92. *Dryopteris kilemensis* (Kuhn) C. Chr. with adpressed lanceolate scales on the secondary and tertiary rachises has been collected, in Southern Rhodesia: Umtali, Pioneer Farm, *Fisher & Schweickerdt* 319 (BM), Vumba, *Fisher & Schweickerdt* 440 (BM) and in Portuguese East Africa, Manica, Chimanimani, *Pedro e Pedrogão* 7371 (BM).

93. *Dryopteris squamiseta* (Hook.) O. Ktze. antedates *D. Buchanani* (Bak.) O. Ktze.

94. *Dryopteris cirrhosa* (Schum.) O. Ktze. which has the stipe and rachis set with numerous brown hair-like scales has been found in Portuguese East Africa, Manica e Sofala: Mossurize, between Espungabera & Gogoi *Pedro e Pedrogao* 7477 (BM), Chimoio, Garuso, *Mendonça* 2533 (BM).

95. *Dryopteris foliosa* C. Chr., Dansk Bot. Arkiv, 9, 3, 61 (1937).

96. *Polystichum lucidum* (Burm.) Becherer in Candollea, 7, 227 (*Asplenium lucidum* Burm., 1768) has precedence over *P. pungens*.

97. Christensen (1932) regards this plant as very near the European and African *P. setiferum* (Forsk.) Woytnar and uses the name *P. ammi-folium* (Poir.) C. Chr. for it.

98. See Christensen's revision of the genus *Cyrtomium* in Amer. Fern Journ., 20, 41 (1930).

99. *Tectaria gemmifera* (Fée) Alston, Journ. Bot., 77, 228 (1939).

100. *Bolbitis Heudelotii* (Bory) Alston, Journ. Bot., 72, Suppl. 3.

101. *Lomariopsis Warneckii* Hieron. with dimorphic fronds similar superficially to those of *Blechnum capense*, has pinnae which are articulated to the rachis. The margins of the pinnae are finely irregularly crenulate-undulate. It has been collected in Southern Rhodesia: Mt. Selinda, Chirinda Forest, *Chase s.n.* (BM, NU) and in Portuguese East Africa: Garuso, *Schweickerdt* 2031, 2034 (BM).

102. *Platyterium alcorni* (Willem.) Desv. differs from the Australian *P. bifurcatum* in having apical sterile areas on the fertile ultimate segments of the fertile fronds.

103. The African species of the genus *Pyrrosia* have been revised by Schelpe, Journ. S. Afr. Bot., 18, 123 (1952).

104. A southern form of *Polypodium rigescens* Bory with small (3—6 cm. long, 0.6—0.8 cm. broad), deeply pinnatifid fronds and with prominent paraphyses in the sori, has been found on the Natal Drakensberg: Royal Natal National Park, summit of Tugela Falls (9,700'), *Schelpe* 2000 (BM, BOL, K, NU); Cleft Peak, Cathedral Peak Area, *Box* 3360 (BM) and in Southern Rhodesia: Inyanga, Inyangani (2,400—2,450 m.) *Fries, Norlindh & Weimarck* 3593 (LD), *Norlindh & Weimarck* 4995 (LD).

105. *Polypodium scolopendria* Burm. fil., Fl. Ind., 335 (1768) antedates *P. phymatodes* L. (1771).

106. Christensen (1932) is followed in segregating the African plants previously referred to *P. lineare* Thunb. under *P. Schraderi* Mett.

107. *Polypodium excavatum* Bory differs from *P. Schraderi* in having fronds of a much thinner texture with the veins unobscured. It is known from the Belfast, Pietersburg, Pilgrims Rest and Zoutpansberg districts of the Transvaal and from the Manica and Untali districts of Southern Rhodesia, e.g. Vumba Mtns., Obermeyer 2057 (PRE, TRV), Fisher 1119, 1204 (NU); Mt. Nuza, Gilliland 372 (BM).

108. *Polypodium polycarpon* Cav. Descr., 246 (1802); Sw., Schrad. Journ., 1800 21 (1801) should be used in place of *P. punctatum* (L.) Sw. (1801) non Thunb. (1784). *P. irioides* Lam. is another synonym. See Christensen (1937) in Dansk. Bot. Arkiv, 9, 3, 12.

109. *Polypodium magellanicum* (Desv.) Copeland with small, simple, oblanceolate entire fronds (1.3—3.0 cm. long, 0.3—0.5 cm. broad) bearing short tumid sori set at 30° to the midrib, has been collected in the Cape Province, Stellenbosch div., Jonkershoek, Victoria Peak, 5200', Wicht 148 (BM).

110. The African *P. Eckloni* Kunze is distinct from the American *P. polypodioides*; see Weatherby, Contrib. Gray Herb., 124, 22 (1939).

111. It appears that Sim (1915) did not confuse the application of the names *Elaphoglossum conforme* (Sw.) Schott and "*E. petiolatum*" as suggested by Adamson, Journ. S. Afr. Bot., 8, 271 (1942).

112. *Elaphoglossum isabelense* Brause in Engl. Jahrb., 53, 432 (1915) which differs from *E. conforme* in having larger, lanceolate fronds with acute-acuminate apices is known from the Transvaal, Graskop, Schweickerdt 1630 (BM) and from Southern Rhodesia, Nuza Plateau, Gilliland 890 (BM). Further study of the *E. conforme* group should determine the validity of this species.

113. The African *Elaphoglossum angustatum* (Schrad.) Hieron. is regarded as distinct from the Jamaican *E. petiolatum* (Sw.) Urban, on the characters of the rhizome scales and the shape of the fronds.

114. *Elaphoglossum salicifolium* (Willd. ex Kaulf.) Alston in Exell, Cat. Vasc. Pl. S. Tome, 92 (1944) has membranous, linear fronds with the ventral surfaces thinly clothed in small fimbriate scales, especially about the midrib. It is known from Southern Rhodesia, Vumba Mtns., Norseland, Chase 3472 (BM).

115. *Elaphoglossum Kuhnii* Hieron., Engl. Jahrb., 46, 399 (1911) has the ventral surface of the fronds densely clothed with fimbriate

scales. A series of specimens tentatively referred to this species have been collected in Southern Rhodesia: Odzani Falls, Umtali, *Chase* 3169 (BM); Odzani River Bridge, Umtali, *Chase* 3235 (BM); Vumba Mtns., Norseland, *Chase* 3473 (BM).

HERBARIUM ABBREVIATIONS

BM	British Museum (Nat. Hist.), London.
BOL	Bolus Herbarium, Cape Town.
CTM	South African Museum, Cape Town.
J	Witwatersrand University, Johannesburg.
K	Herbarium, Royal Botanic Gardens, Kew.
LD	Botaniska Museet, Lund.
NBG	National Botanic Gardens, Kirstenbosch.
NH	Natal Herbarium, Durban.
NU	University of Natal, Pietermaritzburg.
PRE	National Herbarium, Pretoria.
PRU	University of Pretoria, Pretoria.
TRV	Transvaal Museum, Pretoria.

PRINCIPAL REFERENCES

- CHRISTENSEN, C. (1906) *Index Filicum*, Hafniae & supplements.
(1932) *The Pteridophyta of Madagascar*, Dansk Bot. Arkiv, 7, 1—253.
(1938) *Filicales in Manual of Pteridology*, The Hague.
- COPELAND, E. B. (1947) *Genera Filicum*, Waltham, Mass.
- SIM, T. R. (1915) *Ferns of South Africa*, ed. ii, Cambridge.